

(7) $f(x) = \frac{1}{3}x^3 - x^2 - 3x - \frac{4}{3}$

(f) $f'(x) = x^2 - 2x - 3$

$f''(x) = 2x - 2$

(g) $\lim_{x \rightarrow 1} \frac{f'(x) + f''(x) - 4}{\sqrt{x} - 1} = \lim_{x \rightarrow 1} \frac{x^2 - x - 3 + 2x - 2 + 4}{\sqrt{x} - 1} = \lim_{x \rightarrow 1} \frac{x^2 - 1}{(\sqrt{x} - 1)(\sqrt{x} + 1)} = \lim_{x \rightarrow 1} \frac{(x-1)(x+1)}{x-1} = (x+1) = 2 \cdot 2 = 4$

(3) $f'(x) = -4$
 $x^2 - 2x - 3 = -4 \Leftrightarrow x^2 - 2x + 1 = 0 \Leftrightarrow (x-1)^2 = 0 \Leftrightarrow x=1$
 $f(1) = \frac{1}{3} - 1 - 3 - \frac{4}{3} = -5$
 $M(1, f(1)) = M(1, -5)$

Apakah $y = f'(x) + k$
 $y = -4 + k$
 Garis singgung $M(1, -5) \rightarrow f(1) = -5 = -4 + k \rightarrow k = -1 \rightarrow (g) = y = -4x - 1$

(A) $f(x) = x^4 + ax + 8$

(D) $f'(x) = 4x^3 + a$

$f(1) = 2019 \Leftrightarrow (B) = 2019$

$\lim_{x \rightarrow 1} \frac{f(1) + f'(1) - 4a}{4} = 0 \rightarrow f'(1) = 0$
 $4(1)^3 + a = 0 \rightarrow a = -4$

(D2) $f(x) = x^4 + 4x + 2019$

$f'(x) = 4x^3 + 4$
 $4x^3 + 4 = 0 \Leftrightarrow x^3 = -1 \Leftrightarrow x = -1$

x	-1	+
f'(x)	-	+
f	↘	↗

0.004
 $f(-1) = 2016$

(D3) Apakah f selalu maksimum 202016
 karena $f(x) \geq 2016$
 $x^4 + 4x + 2019 \geq 2016$
 $x^4 + 4x \geq -3$

(A)

(A) $F(x) = c \cdot f(x)$

$F(x+h) - F(x) = c(f(x+h) - f(x))$

$h \neq 0 \rightarrow \frac{F(x+h) - F(x)}{h} = \frac{c(f(x+h) - f(x))}{h} = c \frac{f(x+h) - f(x)}{h}$

Apakah $\lim_{h \rightarrow 0} \frac{F(x+h) - F(x)}{h} = \lim_{h \rightarrow 0} \left(c \frac{f(x+h) - f(x)}{h} \right) = c \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h} = c f'(x) = F'(x) = c f'(x)$

(B) $f: I \rightarrow \mathbb{R}$ on interval $x_1, x_2 \in I$ dan $x_1 < x_2 \rightarrow f(x_1) < f(x_2)$

(A3) a - (A)

b - (B)

c - (D)

d - (A)

e - (A)

(B) Contoh $x, x+2, x+4, x+6, x+8, x+10, x+12$ dengan 6 E.P.

(B) $\delta = 13 \rightarrow x+6 = 13 \rightarrow x = 7$

(2, 9, 11, 13, 15, 17, 19)

(B2) $\bar{x} = \frac{7+9+11+13+15+17+19}{7} = \frac{3 \cdot 26 + 13^2}{7} = \frac{91}{7} = 13$

(B3) $S^2 = \frac{(7-13)^2 + (9-13)^2 + (11-13)^2 + (13-13)^2 + (15-13)^2 + (17-13)^2 + (19-13)^2}{7}$
 $= \frac{36 + 16 + 4 + 0 + 4 + 16 + 36}{7} = \frac{112}{7} = 16$

Apakah $S = \sqrt{16} \rightarrow S = 4$

(D) $+3$

$\bar{y} = \bar{x} + 3 = 10$

$S_y = S_x = 4$

$CV\% = \frac{S_y}{\bar{y}} \cdot 100 = \frac{4}{10} \cdot 100 = \frac{400}{10} = 40\%$